1. What is the difference between TRAINABLE and NON-TRAINABLE PARAMETERS?

Trainable parameters, also known as learnable parameters or weights, are the internal variables of a model that are updated during the training process to optimize the model's performance. These parameters are learned from the training data by adjusting their values through techniques like gradient descent or back propagation. The model learns the optimal values of trainable parameters that minimize the loss function and improve its ability to make accurate predictions.

Non-trainable parameters provide a way to incorporate prior knowledge, pre-trained models, or fixed configurations into the learning process. They help to stabilize the training, transfer learning, or adapt models to specific tasks without altering the pre-defined parameters.

1. In the CNN architecture, where does the DROPOUT LAYER go?

In a convolutional neural network (CNN) architecture, the dropout layer is typically placed after the fully connected layers (also known as dense layers) and before the output layer. The exact placement may vary depending on the specific design choices and requirements of the model.

1. What is the optimal number of hidden layers to stack?

The optimal number of hidden layers to stack in a neural network depends on several factors, including the complexity of the problem, the available data, and the characteristics of the dataset. Unfortunately, there is no one-size-fits-all answer, and determining the optimal number of hidden layers often requires empirical experimentation and careful consideration.

1. In each layer, how many secret units or filters should there be?

The number of neurons or filters in each layer of a neural network, including the number of hidden units or filters, is a hyperparameter that needs to be determined through experimentation and iterative refinement.

1. What should your initial learning rate be?

The choice of the initial learning rate for training a neural network is an important hyperparameter that can greatly impact the convergence and performance of the model. However, determining the optimal initial learning rate is not straightforward and often requires experimentation and fine-tuning.

1. What do you do with the activation function?

The activation function is a crucial component of a neural network that introduces non-linearity into the model's computations. It is applied to the output of each neuron or layer and helps the network learn complex mappings between the input and output.

1. What is NORMALIZATION OF DATA

Normalization of data, also known as feature scaling, is a data pre-processing technique used to standardize or rescale the features of a dataset to a common scale. The goal of normalization is to bring the data into a consistent range that helps improve the performance and convergence of machine learning models.

1. What is IMAGE AUGMENTATION and how does it work?

Image augmentation is a technique used in computer vision tasks, such as image classification or object detection, to artificially increase the diversity and size of a training dataset by applying various transformations or perturbations to the existing images. The goal of image augmentation is to improve the model's ability to generalize and perform well on unseen data by exposing it to a wider range of variations.

1. What is DECLINE IN LEARNING RATE?

A decline in learning rate, also known as learning rate decay or learning rate schedule, refers to the reduction of the learning rate over the course of training in a machine learning or deep learning model. The purpose of a declining learning rate is to fine-tune the learning process and improve the convergence and performance of the model.

1. What does EARLY STOPPING CRITERIA mean?

Early stopping criteria is a technique used during the training of machine learning or deep learning models to prevent overfitting and determine the optimal point at which to stop the training process. It involves monitoring a validation metric or loss function during training and stopping the training when certain criteria are met.